

# Carpinteria

Reference ID

Origin: California, USA

## API Gravity

22.9

ESD 91

## Equation(s) for Predicting Evaporation

$$\%Ev = (1.68 + 0.045T)\ln(t)$$

Where %Ev = weight percent evaporated; T = surface temperature (°C); t = time (minutes)

ESD 96

## Sulphur (weight %)

Evaporation

(volume %)

0

1.88

ESD 93

10

2.01

15

2.04

## Water Content (weight %)

Evaporation

(volume %)

0

0.1

ESD 98

10

0.1

15

<0.1

## Flash Point (°C)

Evaporation

(volume %)

0

-15

ESD 91

10

54

ESD 92

15

>90

## Density (g/mL)

Evaporation

(volume %)

0

Temperature

(°C)

0

0.9263

ESD 91

15

0.9155

10

0

0.9397

15

0.9299

15

0

0.9589

15

0.9482

## Pour Point (°C)

Evaporation

(volume %)

0

-21

ESD 91

10

6

15

12

## Dynamic Viscosity (mPa·s or cP)

Evaporation

(volume %)

0

Temperature

(°C)

0

790

ESD 91

15

164

10

0

13750 (a)

63270 (b)

15

755

15

0

56280 (a)

61580 (b)

15

3426

Shear rate = (a) 10/s; (b) 1/s

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## Emulsion Formation

Evaporation  
(volume %)

0	Visual stability	unstable	ESD 98
	Water content (wt %)	9	
10	Visual stability	mesostable	
	Viscosity (mPa·s)	21000	
	Complex modulus (Pa)	73	
	Water content (wt %)	72	
15	Visual stability	mesostable	
	Viscosity (mPa·s)	29000	
	Complex modulus (Pa)	130	
	Water content (wt %)	54	

## Chemical Dispersibility (volume %)

Evaporation  
(volume %)

0	Corexit 9500	16	ESD 98
	Corexit 9527	0	ESD 91
	Dasic LTS	0	
	Enersperse 700	11	ESD 96
9	Corexit 9500	7	
	Corexit 9527	0 (a)	
	Dasic LTS	0 (a)	
	Enersperse 700	0 (a)	
15	Corexit 9500	7	ESD 98
	Corexit 9527	0 (a)	ESD 96
	Dasic LTS	0 (a)	
	Enersperse 700	0 (a)	

(a) UV/VIS quantitation

## Hydrocarbon Groups (weight %)

Evaporation  
(volume %)

0	Saturates	44	ESD 96
	Aromatics	30	
	Resins	17	
	Asphaltenes	9	
	Waxes	7	ESD 91
10	Saturates	40	ESD 96
	Aromatics	30	
	Resins	19	
	Asphaltenes	11	
	Waxes	5	ESD 98
15	Saturates	31	ESD 96
	Aromatics	36	
	Resins	22	
	Asphaltenes	11	
	Waxes	4	ESD 98

## Adhesion (g/m<sup>2</sup>)

Evaporation  
(volume %)

0	57	SD = 8	ESD 96
10	61	SD = 9	
15	76	SD = 8	

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## Volatil Organic Compounds (ppm)

Evaporation  
(volume %)

0

Benzene 190  
Toluene 1080  
Ethylbenzene 520  
Xylenes 1690  
C3-benzenes 3100  
Total BTEX 3470  
Total VOCs 6570

ESD 94

10

Benzene 100  
Toluene 560  
Ethylbenzene 410  
Xylenes 1380  
C3-benzenes 3330  
Total BTEX 2460  
Total VOCs 5790

15

Benzene 0  
Toluene 30  
Ethylbenzene 0  
Xylenes 30  
C3-benzenes 1010  
Total BTEX 60  
Total VOCs 1070

## Surface Tension (mN/m or dynes/cm)

Evaporation  
(volume %)

0

Temperature  
(°C)

0

30.8

ESD 91

15

27.8

10

0

NM

15

28.6

15

0

NM

15

33.3

## Oil/Salt Water Interfacial Tension (mN/m or dynes/cm)

Evaporation  
(volume %)

0

Temperature  
(°C)

0

27.5

ESD 91

15

23.7

10

0

NM

15

21.3

15

0

NM

15

30.0

## Oil/Fresh Water Interfacial Tension (mN/m or

Evaporation  
(volume %)

0

Temperature  
(°C)

0

31.0

ESD 91

15

26.0

10

0

NM

15

24.7

15

0

NM

15

35.5

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## Boiling Point Distribution (weight %)

Evaporation  
(volume %)

Boiling Point  
(°C)

Weight %

0

40

2

ESD 94

60

2

80

3

100

6

120

8

140

11

160

13

180

15

200

18

250

24

300

32

350

40

400

47

450

56

500

64

550

71

600

78

650

84

700

89

10

100

1

ESD 96

120

1

140

3

160

5

180

7

200

9

250

17

300

25

350

35

400

44

450

54

500

63

550

71

600

78

650

84

700

89

15

180

1

200

3

250

10

300

19

350

29

400

38

450

49

500

59

550

67

600

75

650

81

700

86

## Boiling Point Distribution (°C)

Evaporation  
(volume %)

Weight %

Boiling Point  
(°C)

0

5

ESD 94

10

15

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## Boiling Point Distribution (°C)

Evaporation  
(volume %)

Weight %

Boiling Point  
(°C)

0	20	ESD 94
	25	
	30	
	35	
	40	
	45	
	50	
	55	
	60	
	65	
	70	
	75	
	80	
	85	
	90	
10	5	ESD 96
	10	
	15	
	20	
	25	
	30	
	35	
	40	
	45	
	50	
	55	
	60	
	65	
	70	
	75	
	80	
	85	
	90	
15	5	
	10	
	15	
	20	
	25	
	30	
	35	
	40	
	45	
	50	
	55	
	60	
	65	
	70	
	75	
	80	
	85	
	90	

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## Metals (ppm)

Evaporation  
(volume %)

0

Aluminum	<5
Barium	<0.3
Cadmium	<0.5
Calcium	170.0
Chromium	<1.5
Cobalt	<1
Copper	<0.6
Iron	29.5
Lead	<3
Magnesium	<1
Manganese	<0.3
Mercury	<15
Molybdenum	<0.6
Nickel	48.9
Selenium	39.0
Strontium	<0.2
Tin	<15
Titanium	<0.6
Vanadium	112.0
Zinc	<0.6

Cao 92

10

Barium	<0.3
Chromium	<1.5
Copper	<0.6
Iron	32.4
Lead	<4
Magnesium	4.1
Molybdenum	1.3
Nickel	58.4
Titanium	0.9
Vanadium	112.0
Zinc	0.9

15

Barium	<0.3
Chromium	<1.5
Copper	<0.6
Iron	35.9
Lead	<3
Magnesium	1.4
Molybdenum	<0.6
Nickel	65.5
Titanium	<0.6
Vanadium	148.0
Zinc	<0.6

## Aqueous Solubility (mg/L)

Room temperature

11

(a)

ESD 91

(a) fresh water

## Acute Toxicity of Water Soluble Fraction (mg/L)

Test Organism

48h LC50

Daphnia magna

6

(a)

Harris 94

(a) results based on GC purge-and-trap analysis